C2

2. (Amended) The method of Claim 1, wherein the SiO_2 precursor is selected from the group consisting of TEOS (tetraethylorthosilicate), TMCTS (tetramethylcyclotetrasiloxane), DES (diethylsilane), DTBS (ditertiarybutylsilane), TMOS (tetramethylorthosilicate) and FTES (fluorotriethoxysilane).

4. (Amended) The method of Claim [3]1, wherein the dopant source for [CVD deposition of the SiO_2 film]boron is selected from the group consisting of triisopropylborate, TMB (trimethylborate), and TEB (triethylborate), and the dopant source for phosphorus is selected from the group consisting of TEPo (triethylphosphate), TEPi (triethylphosphite), TMPo (trimethylphosphate)[,] and TMPi (trimethylphosphite).

C3

5. (Amended) The method of Claim [3]1, further comprising [the step of] introducing a gas volume of a carrier gas into the reaction chamber[, to regulate the uniformity of film deposition on the substrate].

6. (Amended) The method of Claim 5, wherein the dopant source for [CVD deposition of the SiO_2 film]boron is selected from the group consisting of triisopropylborate, TMB (trimethylborate)[,] and TEB (triethylborate), and the dopant source for phosphorus is selected from the group consisting of TEPo (triethylphosphate), TEPi (triethylphosphite), TMPo (trimethylphosphate)[,] and TMPi (trimethylphosphite).

7. (Amended) The method of Claim 5, wherein the substrate is heated to a temperature within a range of 200° C[.] to 700° C.

8. (Amended) The method of Claim [7]5, wherein the substrate is heated to a temperature of about 480° C.

C3 Cond.

9. (Amended) The method of Claim 6, wherein the substrate is heated to a temperature within a range of 200° C[.] to 700° C.

10. (Amended) The method of Claim 6, wherein the substrate is heated to a temperature of about 480° C.

Subt D1

31. (New) A method of depositing a silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor and ozone; and

illuminating the reaction volume of gas from a light source without directly exposing the substrate surface to the light source.

Subt G1

C4

32. (New) The method of Claim 31, wherein the light source comprises mercury arc vapor lamps.

33. (New) The method of Claim 31, wherein the reaction volume of gas further comprises a carrier gas.

34. (New) The method of Claim 31, wherein the reaction volume of gas further comprises a carrier gas selected from the group consisting of the Noble gases, nitrogen and hydrogen.

35. (New) The method of Claim 31, wherein the reaction volume of gas further comprises a carrier gas comprising helium.

36. (New) The method of Claim 31, wherein ozone comprises approximately 5% to 15% by volume of the reaction volume of gas.

37. (New) The method of Claim 31, further comprising:
subjecting the reaction volume of gas to a pressure of approximately 0.1 to 760 torr during deposition of the silicon dioxide layer.

38. (New) The method of Claim 31, further comprising:
subjecting the reaction volume of gas to a pressure of approximately 200 torr during deposition of the silicon dioxide layer.

39. (New) The method of Claim 31, wherein the SiO_2 precursor is selected from the group consisting of TEOS (tetraethylorthosilicate), TMCTS (tetramethylcyclotetrasiloxane), DES (diethylsilane), DTBS (ditertiarybutylsilane), TMOS (tetramethylorthosilicate) and FTES (fluorotriethoxysilane).

40. (New) The method of Claim 31, wherein the reaction volume of gas further comprises at least one dopant source selected from the group consisting of triisopropylborate, TMB (trimethylborate), TEB (triethylborate), TEPo (triethylphosphate), TEPi (triethylphosphite), TMPo (trimethylphosphate) and TMPi (trimethylphosphite).

41. (New) The method of Claim 31, wherein the reaction volume of gas further comprises at least one dopant source for boron selected from the group consisting of triisopropylborate, TMB (trimethylborate), and TEB (triethylborate), and at least one dopant source for phosphorus selected from the group consisting of TEPo (triethylphosphate), TEPi (triethylphosphite), TMPo (trimethylphosphate) and TMPi (trimethylphosphite).

42. (New) A method of depositing a doped silicon dioxide layer on a substrate surface, comprising:
contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor, ozone and at least one dopant source; and

illuminating the reaction volume of gas from a light source without directly exposing the substrate surface to the light source.

43. (New) A method of depositing a doped silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor, ozone and at least two dopant sources; and

illuminating the reaction volume of gas from a light source.

44. (New) The method of Claim 43, wherein the at least two dopant sources comprise a dopant source for boron and a dopant source for phosphorus.

45. (New) A method of depositing a borophosphosilicate glass layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas, wherein the reaction volume of gas comprises:

a SiO_2 precursor selected from the group consisting of TEOS (tetraethylorthosilicate), TMCTS (tetramethylcyclotetrasiloxane), DES (diethylsilane), DTBS (ditertiarybutylsilane) and TMOS (tetramethylorthosilicate);

a dopant source for boron selected from the group consisting of triisopropylborate, TMB (trimethylborate), and TEB (triethylborate); and

a dopant source for phosphorus selected from the group consisting of TEPo (triethylphosphate), TEPi (triethylphosphite), TMPo (trimethylphosphate) and TMPi (trimethylphosphite); and

illuminating the reaction volume of gas from a high intensity light source.

46. (New) A method of depositing a fluorosilicate glass layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a fluorinated SiO_2 precursor and ozone; and

illuminating the reaction volume of gas from a light source.

47. (New) A method of depositing a doped fluorosilicate glass layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a fluorinated SiO_2 precursor, ozone and at least one dopant source; and

illuminating the reaction volume of gas from a light source.

C4 cont.

48. (New) A method of depositing a doped fluorosilicate glass layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a fluorinated SiO_2 precursor, ozone and at least two dopant sources; and

illuminating the reaction volume of gas from a light source.

Sub C1

49. (New) The method of Claim 48, wherein the at least two dopant sources comprise a dopant source for boron and a dopant source for phosphorus.

Sub C2

50. (New) A method of depositing a fluoroborophosphosilicate glass layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas, wherein the reaction volume of gas comprises:

a SiO_2 precursor comprising FTES (fluorotriethoxysilane);

a dopant source for boron selected from the group consisting of triisopropylborate, TMB (trimethylborate), and TEB (triethylborate); and

a dopant source for phosphorus selected from the group consisting of TEPo (triethylphosphate), TEPi (triethylphosphite), TMPo (trimethylphosphate) and TMPi (trimethylphosphite); and

illuminating the reaction volume of gas from a high intensity light source.

Subt D3

51. (New) A method of depositing a silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor and ozone; and

illuminating the reaction volume of gas from a light source comprising mercury arc vapor lamps without directly exposing the substrate surface to the light source.

C4 cont.

52. (New) A method of depositing a doped silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor, ozone and at least one dopant source; and

illuminating the reaction volume of gas from a light source comprising mercury arc vapor lamps without directly exposing the substrate surface to the light source.

53. (New) A method of depositing a doped silicon dioxide layer on a substrate surface, comprising:

contacting the substrate surface with a reaction volume of gas comprising a SiO_2 precursor, ozone and at least two dopant sources; and

illuminating the reaction volume of gas from a light source comprising mercury arc vapor lamps.

54. (New) The method of Claim 53, wherein the at least two dopant sources comprise a dopant source for boron and a dopant source for phosphorus.